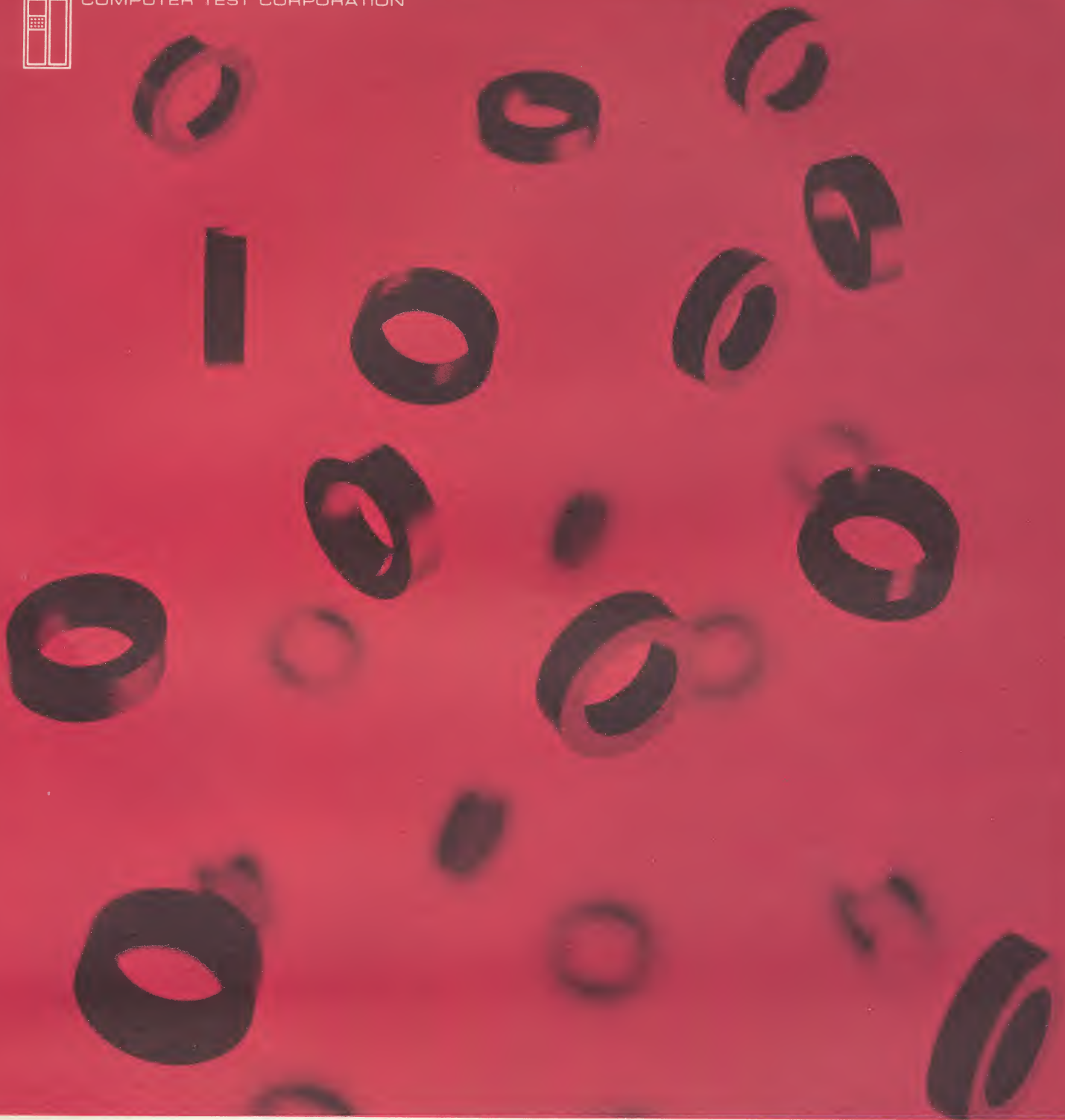




COMPUTER TEST CORPORATION



RAMSEY CORE HANDLERS

ramsey core handlers

The Difference That Comes From Leadership

As soon as you see a Ramsey handler you will know the difference that comes from leadership. Every machine has that smooth look of precision that instantly and instinctively conveys the impression of excellence in materials and craftsmanship. Ever since Ramsey introduced the computer industry's first commercially available automatic core handler, its philosophy has been to concentrate on comprehensive and superior mechanical engineering and design. The quality of the finished product tells its own story.

A continuing series of technical innovations since its initial

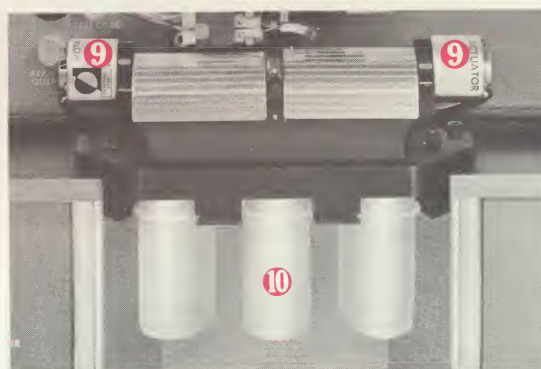
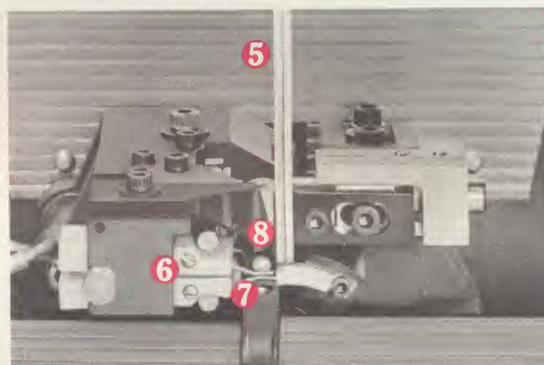
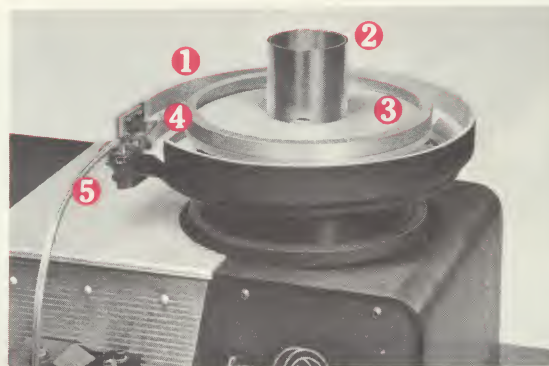
pioneering development, acutely attuned to industry advances toward smaller and smaller size cores and the pressing needs of production for the economies of faster and faster testing speeds, has made Ramsey handlers industry standards. Hundreds of its machines are in daily use in every major core and memory production facility throughout the world. In an industry whose technological requirements are increasingly more demanding, this unrivalled acceptance reveals the real difference that comes from leadership—demonstrably superior products that consistently make important contributions toward reducing the overall cost of magnetic core memories.

the ramsey design

All Ramsey core handlers utilize the same basic design principles. Cores are placed in bulk in a feeder bowl or hopper from where they are transferred serially to a feed chute. Each core, in turn, is positioned so that it can be threaded by a reciprocating two-conductor test probe. Wiping contacts made with the probe complete isolated drive and sense circuits through the core. After the test is completed, the core is released and directed to the proper storage receptacle by a sorting mechanism. Sorting solenoids controlling the disposition of the tested core are operated by signals from a separate control head which receives its commands from associated automatic core test equipment.

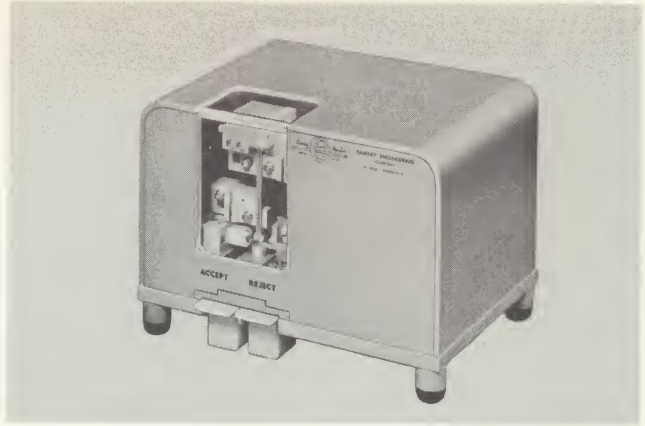
All fully automatic core handlers are free running. Two photo diode outputs from each handler synchronize it with the automatic core test equipment by indicating, during each mechanical cycle, when to test and when to sort each core. Each handler has its own power supply and operating controls housed in a separate control unit.

- ① Feeder bowl ② Feed tube ③ Sizing screen
- ④ Spiral raceway ⑤ Feed chute ⑥ Contact blocks
- ⑦ Wiping contacts ⑧ Test probe ⑨ Sorting solenoids
- ⑩ Storage receptacles



MODEL CH-25

APPLICATIONS:
AQL TESTING
INCOMING INSPECTION
LABORATORY ANALYSES



semi-automatic core handlers

Provides Answer to Low Cost Reliable Handling

The Model CH-25 "AQL'er" Core Handler has been developed specifically to answer the need for a low cost, highly reliable memory core handler for applications which do not require high speed, fully automatic operation. The CH-25 is the ideal handler for incoming inspection or quality assurance, and in the laboratory it provides a convenient, low cost means for scanning large numbers of cores much faster than is possible with a manually operated test jig. The CH-25 also offers the advantage of being able to operate remotely at elevated temperatures to 85°C for analysis of core behavior under a wide range of temperature conditions.

Simplified Design Permits

Rapid Hardware Interchangeability

Simplicity in the mounting of feed and probe hardware enables the user to make rapid hardware changes to accommodate different core sizes and makes test probe replacement fast and easy. Core sizes from 16 to 80 mils O.D. with thicknesses from 3.8 to 15 mils can be handled.

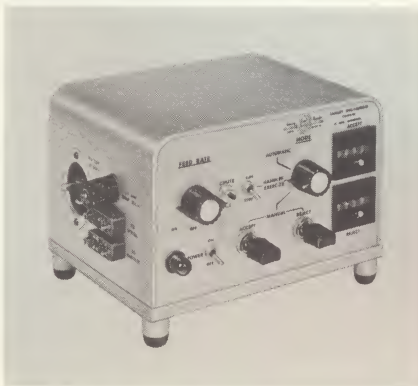
High Frequency Circuit & Wiring Techniques Extend Performance

Six isolated current driver inputs plus inductance-compensating circuitry permit driving cores with fast rise time pulses and minimum pulse waveform distortion. High frequency wiring techniques are employed to reduce uncanceled noise output to a negligible level.

Offers Versatility of Three Operational Modes

The CH-25 features Semi-Automatic, Automatic and Exercise modes of operation. In the Semi-Automatic mode, the operator's sorting command both deposits the tested core in the proper category container and advances the next core to the test position. In the Automatic mode, the associated core test system furnishes the sorting signal for the core under test, and then delays the start of the next test program until the handler has cycled. The Exercise mode cycles the handler continuously, alternately sorting cores as Accept and Reject. This mode provides a convenient check of handler operation.

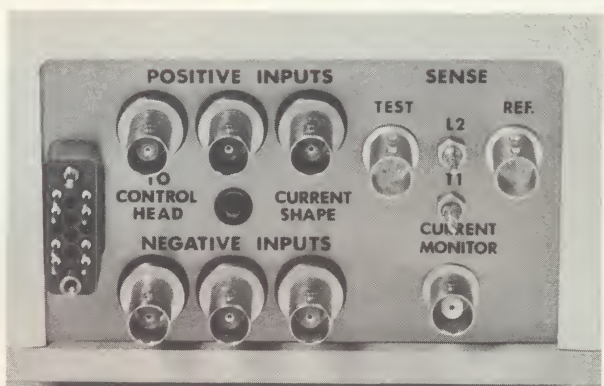
MODEL CH-25 CONTROL UNIT



ELECTROMECHANICAL
COUNTERS

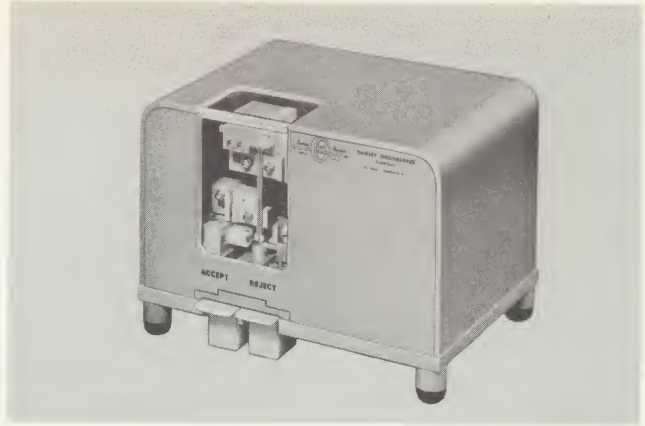


ISOLATED CURRENT DRIVER INPUTS



MODEL CH-25

APPLICATIONS:
AQL TESTING
INCOMING INSPECTION
LABORATORY ANALYSES



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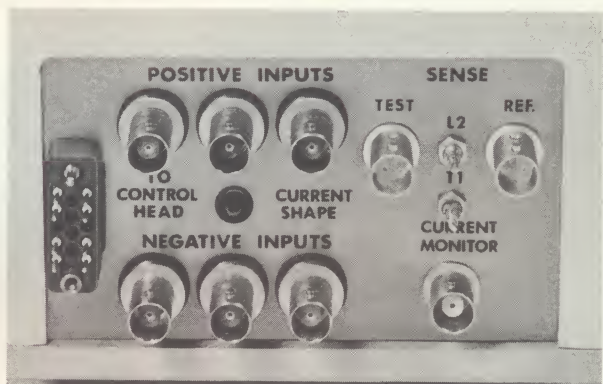
MODEL CH-25 CONTROL UNIT



ELECTROMECHANICAL
COUNTERS



ISOLATED CURRENT DRIVER INPUTS



fully automatic core handlers

high speed 650 cores/min.

MODELS CH-70 - CH-75

APPLICATIONS:
PRODUCTION TEST OF MEDIUM
AND FAST SWITCHING CORES



Field-Proven Reliables Add Further Refinements

The Models CH-70 and CH-75 handle cores at rates up to 650 per minute within a range of from 20 to 80 mils O.D. The field-proven features that have made them the industry's favorites remain, while a new current pulse interface circuit and a continuously variable electronic speed control have been added.

Interface Panel Minimizes Current Pulse Interaction

A newly designed current pulse interface circuit assures minimal distortion of fast rise time driving pulses. Six BNC connectors, three for positive and three for negative current drivers, each with a 52 ohm impedance, accept isolated read and write currents. The individual terminating resistors and a compensated common inductance assure minimal interaction between input current driving pulses.

Noise Cancellation Adjustment Minimizes Air Flux Noise Level

A noise cancellation adjustment is provided on the interface panel to minimize the effect of mutual inductance between drive and sense circuits within the test probe. By algebraically adding to the induced "noise" a similar wave-shape of opposite polarity and adjustable amplitude, coupled noise can be reduced to negligible levels.

Three Category Grader Permits Tighter Specification Limits

The Models CH-70 and CH-75 are different only in the number of classifications for core sorting which each provides. The CH-70 has a three category sorter which permits, in addition to Reject accumulation, the acceptance of good cores in two categories. Thus, tighter limits may be set on the Accept cores, for say, lower overall memory plane delta noise or for a tighter envelope of "ones". The CH-75 provides for Accept and Reject classifications.

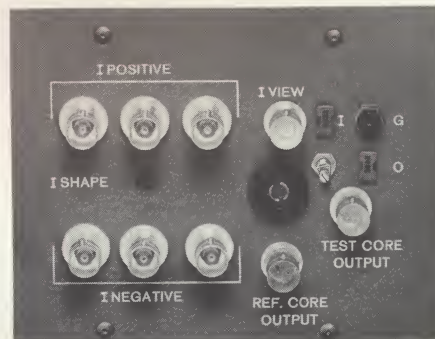
MODEL CH-70, CH-75 CONTROL UNIT



VARIABLE ELECTRONIC SPEED CONTROL



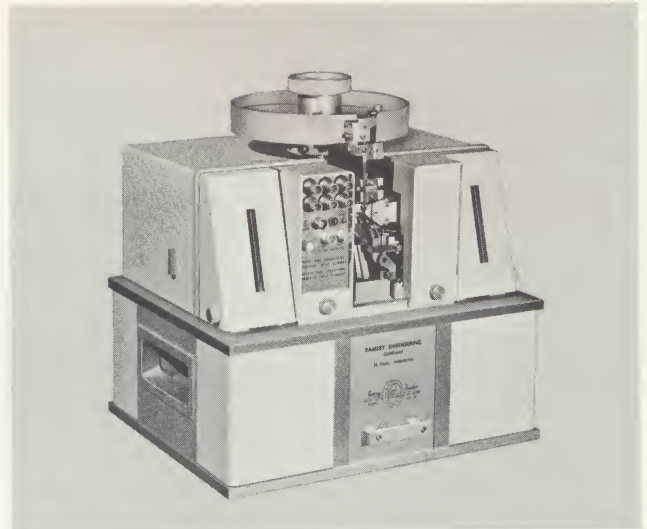
INTERFACE PANEL ISOLATES INPUT PULSES



very high speed 1,000 cores/min.

MODELS CH-100 – CH-103

APPLICATIONS:
MASS PRODUCTION TESTING



Low Cost, Large Volume Handling

Ramsey core handlers in the new CH-100 series meet the demand in the industry for low cost, mass production testing of ferrite memory cores. Processing cores at rates to 1,000 per minute, production economies can be immediately realized in the field since cost of the related electronic drive/analysis system remains the same as that required for lower speed handlers. The recent introduction of a new time multiplex core test system by Computer Test Corporation, illustrated at the right, now makes it possible to double the core handling and testing rate by operating two handlers simultaneously. Also, in keeping with the trend to smaller and smaller cores, the CH-100 series accommodates cores having outside diameters to as small as 16 mils.

Quick-Change Carbide Hardware Reduces Maintenance Time and Costs

Pre-aligned quick-change hardware assemblies for accommodating various core size ranges can be easily and rapidly interchanged in these machines. To help reduce maintenance time and costs, extended hardware life has been achieved by using non-magnetic chrome carbide at points of greatest wear. Other mechanical features that lower maintenance and enhance continuous "up-time" of the handlers include: (1) a greatly simplified test probe arrangement; (2) a newly designed mechanical test cycle that employs only one moving part other than the test probe itself; (3) a fast acting brake-clutch assembly that insures that the handler stops in the test position every time on command from the grading system.

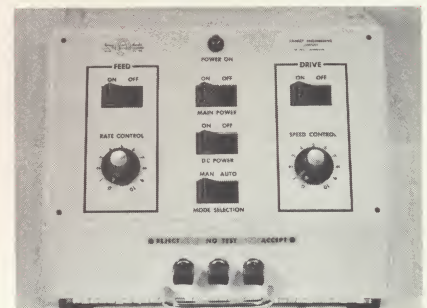
Advanced Circuit Design Overcomes Critical High Frequency Problems

The critical high frequency problems involved in testing fast switching ferrites have been solved in these handlers through the use of advanced circuits utilizing ground plane design, noise cancellation and isolation techniques, dynamic impedance matching, and special shielding. Six individual current driver inputs isolate positive and negative read and write currents, and inductance compensating circuitry insures the ability to drive cores with 25 nanosecond rise time current pulses while minimizing waveform distortions.

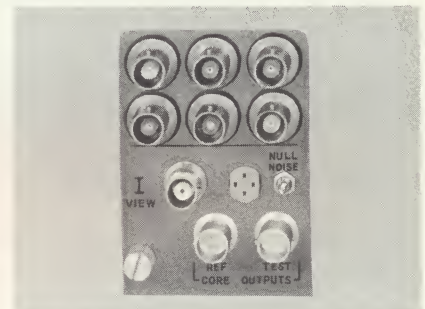
Two or Three Grade Classifications Available

The Models CH-100 and CH-103 are identical except that the CH-100 sorts into two grades (Accept and Reject) while the CH-103 sorts into three grades (Accept 1, Accept 2 and Reject). Sorting is accomplished gently and at high speed through a unique system of pneumatic handling of the tested core. Both the CH-100 and the CH-103 are provided complete with mounting table and binocular microscope to speed set up and insure precise adjustment of the core chute and test probe.

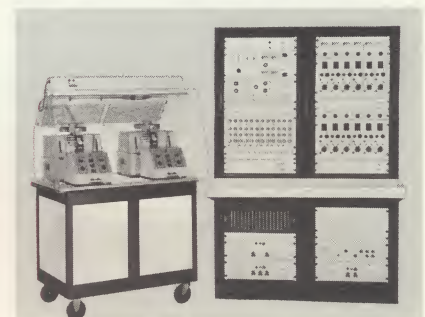
CONTROL UNIT CONTAINS VARIABLE RATE AND SPEED CONTROLS



ISOLATED CURRENT DRIVER INPUTS & INDUCTANCE COMPENSATING CIRCUITS



CTC MODEL C-301M CORE TESTER MULTIPLEXES CH-100 HANDLERS



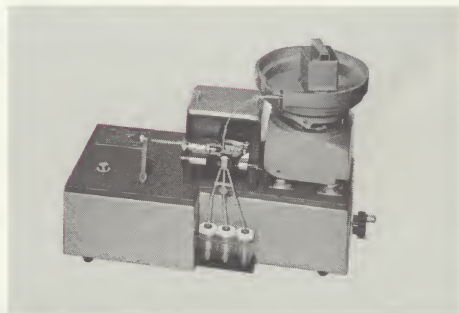
special purpose

automatic core handlers

MODEL CH-58

APPLICATIONS: PRODUCTION HANDLING OF LARGE SWITCH CORES

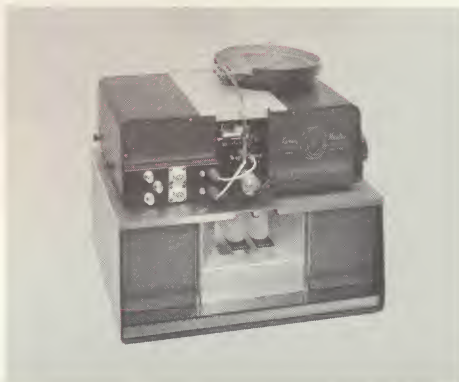
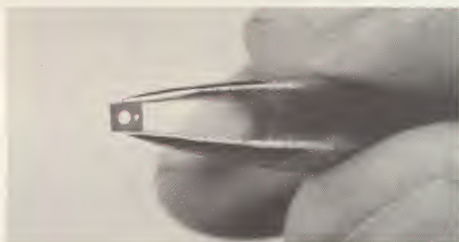
The Ramsey Model CH-58 Core Handler is a free running, automatic machine that is widely used for production rate handling of large size switch cores. The CH-58 is capable of handling cores with outside diameters of from 100 to 250 mils and thicknesses of from 50 to 180 mils. Speed is fixed at a rate between 100 to 200 cores per minute, depending upon core size. A two receptacle selection system provides Accept and Reject sort classifications. Like other Ramsey Handlers, the CH-58 may be operated either manually or automatically and it supplies its synchronizing signals from a system of optically gated photo diodes.



special designs

In addition to the design and manufacture of handlers for processing memory cores which have been widely adopted as having standard dimensions, Ramsey Engineering has designed numerous machines for production handling of ferrite bodies having rather special shapes and dimensions. The photograph at the right shows the Ramsey Model MAH-102 Transfluxor Handler which can be built to handle a variety of transfluxors or other ferrite bodies having two apertures and asymmetrical centers of gravity.

Ramsey's extensive experience in design and construction of hundreds of standard core handlers and numerous handlers for special applications can be brought to bear on other problems relating to high speed orientation, feed and sorting of small ferrite bodies where balanced appreciation for the electrical characteristics and physical demands of the device must be considered. A significant sample of devices to be handled must accompany a request for quotation on the handler itself. The handling of the device will be carefully studied, including laboratory investigation of handling techniques as required, before a firm proposal is made.



2,000 cores/min.

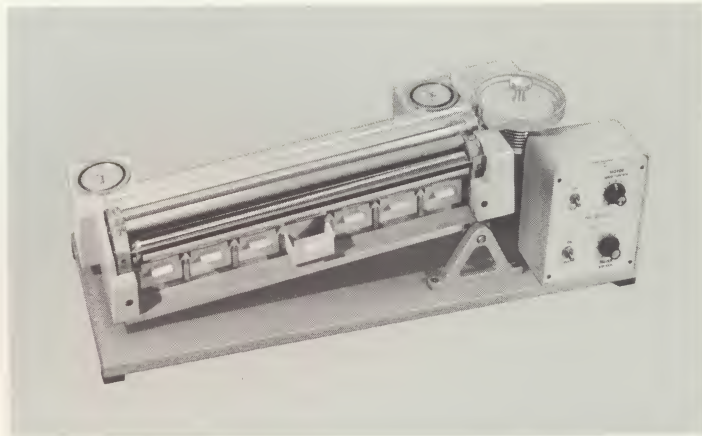
**MODEL MR-301
MIKE-O-ROLL**

APPLICATIONS:

HIGH SPEED

PRODUCTION SIZING

OF FERRITE MEMORY CORES



Reduces Overall Memory Core Production Costs

The MR-301 Mike-O-Roll is a completely automatic core thickness grader for presorting production quantities of ferrite cores, eliminating those which are too thick, too thin or which have manufacturing defects, such as firing flash or die fins. Properly sized cores are one of the key factors in a successful production core handling operation. Cores with physical defects can jam high speed core handlers, or cause erratic feed, broken probes, or damaged contacts, resulting in unnecessary downtime and costly maintenance. The preliminary mechanical grading provided by the MR-301 helps reduce overall production costs by increasing "throughput" of memory core test systems.

Classifies Cores at Rates to 2,000/min.

Sorting rate of the MR-301 is continuously adjustable up to 2,000 cores per minute for core sizes ranging from 12 to 80 mils O.D. The machine grades the cores into five different thickness classifications plus an undersize and an oversize grade.

**Precision Mechanisms and Accurate Indicators
Insure Reliability and Repeatability**

Mechanical design of the MR-301 employs precise but rugged mechanisms of unitized construction. Sizing rollers are hard chrome plated and rotate on journal type bearing mounts. Direct reading dial type indicators showing roller separation are accurate to within 0.1 mil and provide the means for quickly reestablishing previously used roller separation for a particular core type.

Simplicity of Operation Result of Application Oriented Design

The MR-301 was designed for a single application—to provide micrometer-accurate thickness grading of bulk memory cores. The Mike-O-Roll accomplishes this task with true simplicity. In operation, the machine passes cores from the feeder bowl down an inclined "V" formed by two counter rotating, hard chrome plated cylinders which are separated by a progressively widening air gap. A core advances along the rollers until it reaches a suitable opening for its particular thickness, dropping through the gap into its appropriate collection drawer. Cores with thicknesses less than the acceptable minimum fall into the first drawer and those with thicknesses greater than the acceptable maximum, or cores with defects which tend to increase thickness, fall through an opening at the end of the rollers into the last collection drawer.

SPECIFICATIONS

Number of Classifications	7, including one undersize and one oversize grade.
Sorting Rate	2,000 cores per minute maximum.
Roll Separation	0 to 0.050" through micro-adjustment, non-backlash screw controls.
Core Size Capacity	12 to 80 mils O.D.
Roller Concentricity	10 micro-inches maximum deviation.
Journal Bearings	Class 9, Code 2 bearings with maximum run-out of 1/10th mil.
Power Input	115 VAC, 50/60 Hz. (Specify line frequency when ordering.)
Dimensions	27½" long, 10" wide, 10½" high.

ramsey core handler specifications

MECHANICAL	CH-25	CH-58	CH-70, 75	CH-100, 103
Core Handling Capability				
Outer Diameter (mils)	16 to 80	100 to 250	20 to 80	16 to 50
Thickness (mils)	3.8 to 25	50 to 180	3.8 to 25	3.8 to 15
Core Handling Rate/Minute				
20 mil O.D. cores	100	Fixed rate between	500*	1000*
30 mil O.D. cores	100	100 to 200	650*	1000*
50 mil O.D. cores	100	depending	650*	850*
80 mil O.D. cores	100	upon core size	650*	—
*Maximum (speed variable)				
Number of Grading Categories	2	2	3, 2	2, 3
Operating Temperature Range	0 to 85° C	0 to 65° C	0 to 65° C	0 to 65° C
Dimensions (HxWxD)				
Handler Body	5½" x 7¾" x 6"	9" x 19¾" x 12¾"	14¼" x 14⅝" x 13¾"	14¾" x 14" x 11¾"
Control Head	5½" x 7¾" x 7"	4⅝" x 8½" x 5¾"	5¼" x 14¼" x 10"	8½" x 10¼" x 10"
Vacuum Pump	—	7¾" x 15" x 6½"	7¾" x 15" x 6½"	—
Mounting Table	—	—	—	29½" x 26½" x 24"
Weight (pounds)				
Handler Body	4	34	43	49
Control Head	3	4	10	13
Vacuum Pump	—	27	27	—
ELECTRICAL				
Drive Current Inputs				
Quantity	6	1	6	6
Impedance	52	49	52	52
Fastest recommended rise and fall times	20 ns	200 ns	35 ns	25 ns
Uncancelled noise output at 50 ns rise time (I = 800 ma.)	< 1 mv	—	< 1 mv	< 1 mv
Input Power	0.25A	3A	3A	2A
115 VAC, 60 Hz				
(50 Hz available on request)				

NOTE: These core handlers are designed to accept interchangeable hardware so that they may be changed over to handle different core sizes by substitution of core chutes and feed bowls. In ordering core handling equipment it is necessary to state all core dimensions and tolerances, and to furnish several thousand core samples which are physically representative of the cores to be processed.

For additional details, sales or service information on Ramsey handlers, contact:

COMPUTER TEST CORPORATION

Three Computer Drive • Cherry Hill, N.J. • (609) 424-2400

